

ABSTRACT OF DISCLOSURE

A stud welder utilizing a frequency inverter which is capable of delivering in excess of 1000 A for a short duration of about 1 second using double-sided cooled power semiconductors. The inverter can deliver constant power to the stud circuit or the arc, sense the progress of the stud process, and stop the process if the forecast for an acceptable stud will not be achieved, and detected sufficiently early that the current has not created a stud that can not be removed and repeated. The stud welder also has a circuit capable of delivering a high voltage pulse capable of penetrating paint covering the base metal, and thereby enabling better stud welding to painted material. The stud welder and method also monitor the ending energy delivered and adjust it to the energy required. The stud welder further has a battery or capacitor storage device to reduce the fuse size used by storing the energy needed when a stud is formed by charging the storage device when no power is needed.